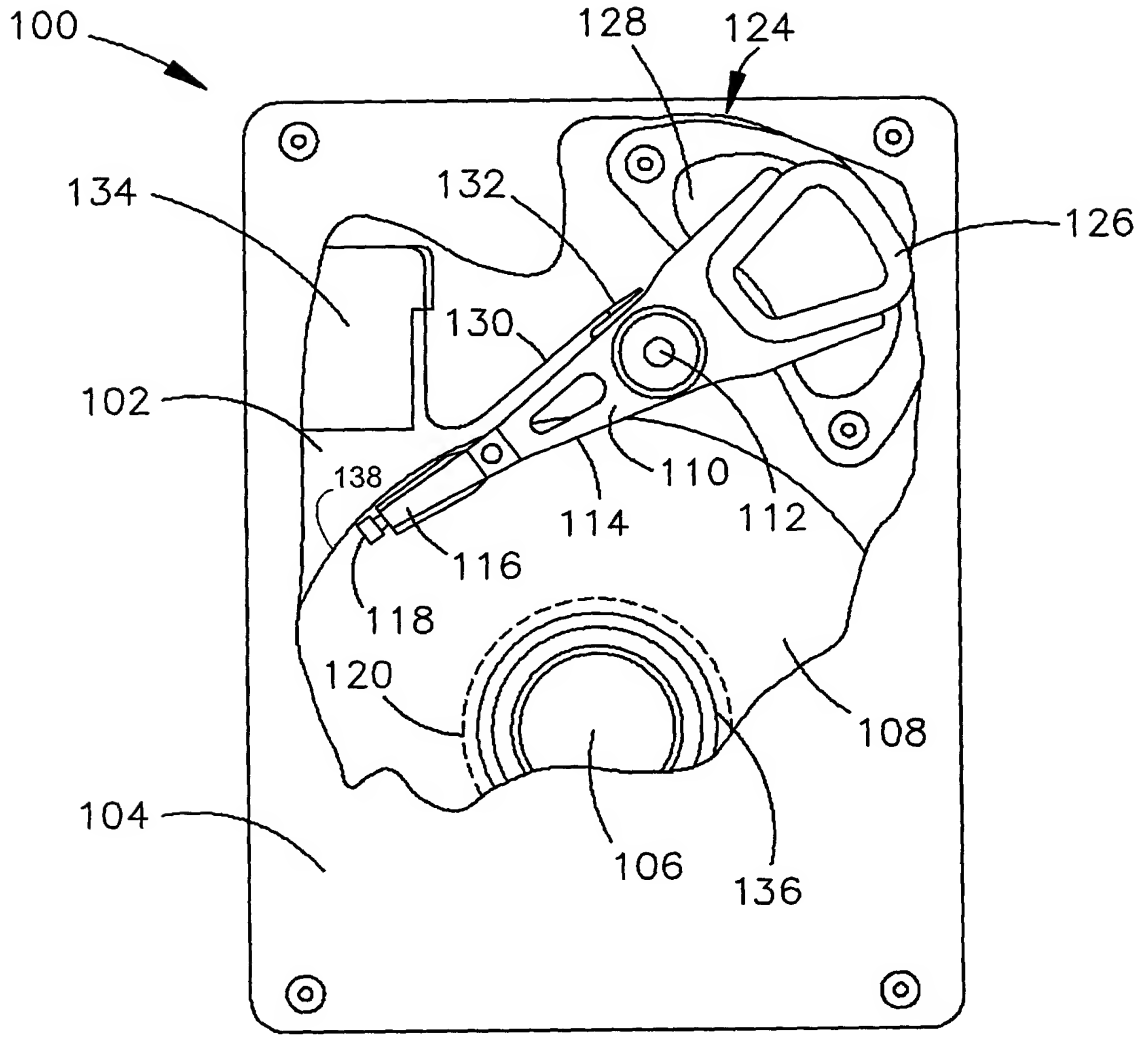

100
128
124
134
132
126
130
102
138
110
114
112
116
118
120
108
104
106
136

FIG. 1

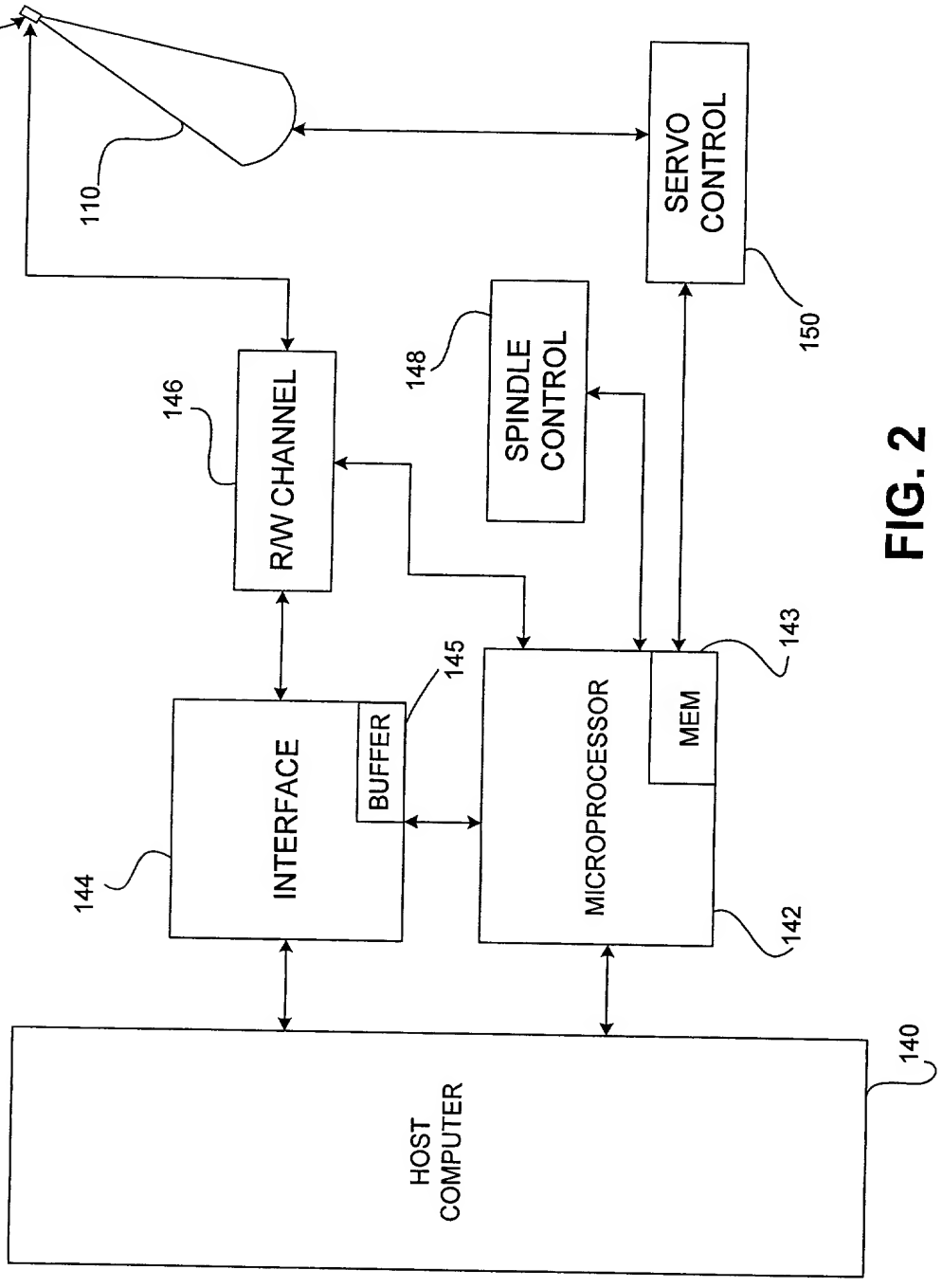

118
110
SERVO CONTROL
150
148
SPINDLE CONTROL
146
R/W CHANNEL
145
143
BUFFER
MEM
INTERFACE
MICROPROCESSOR
144
142
HOST COMPUTER
140

FIG. 2

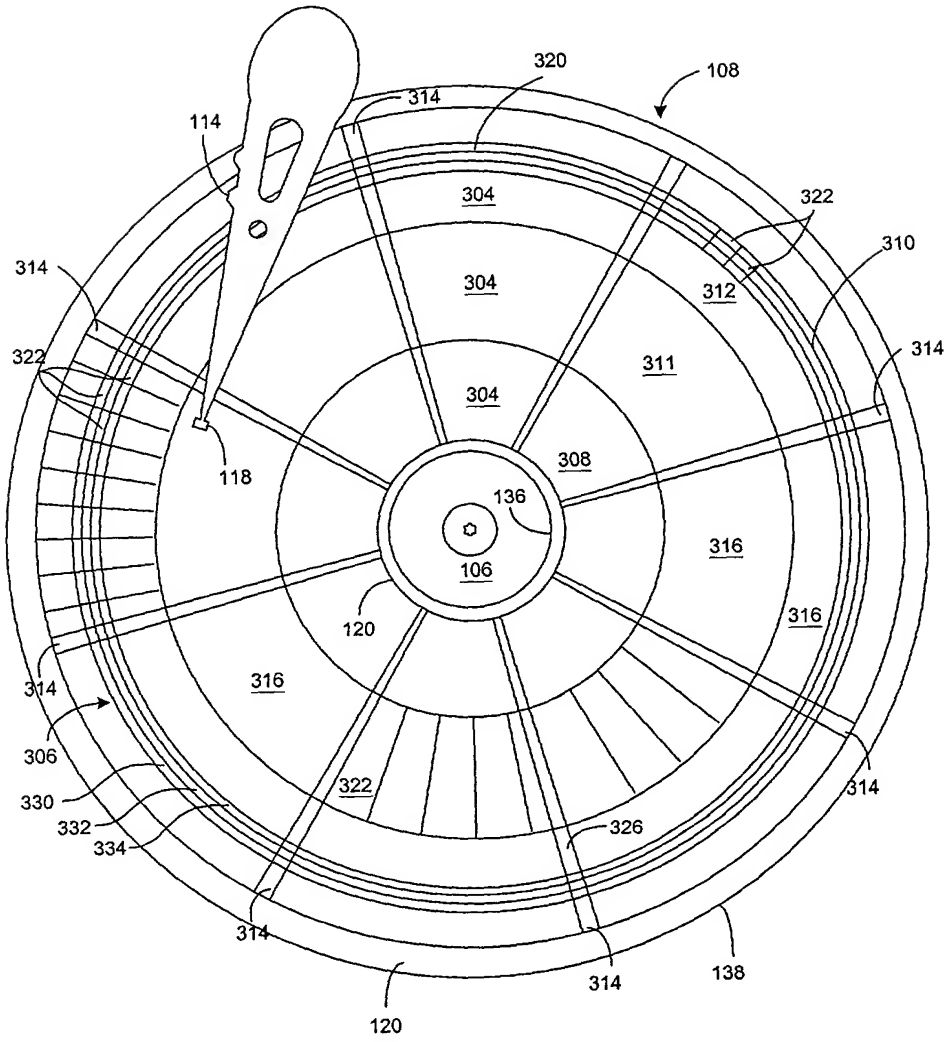

320
108
314
114
304
322
310
314
304
312
322
311
314
304
118
308
136
316
106
120
316
316
314
306
322
314
330
326
332
334
314
314
138
120

FIG. 3

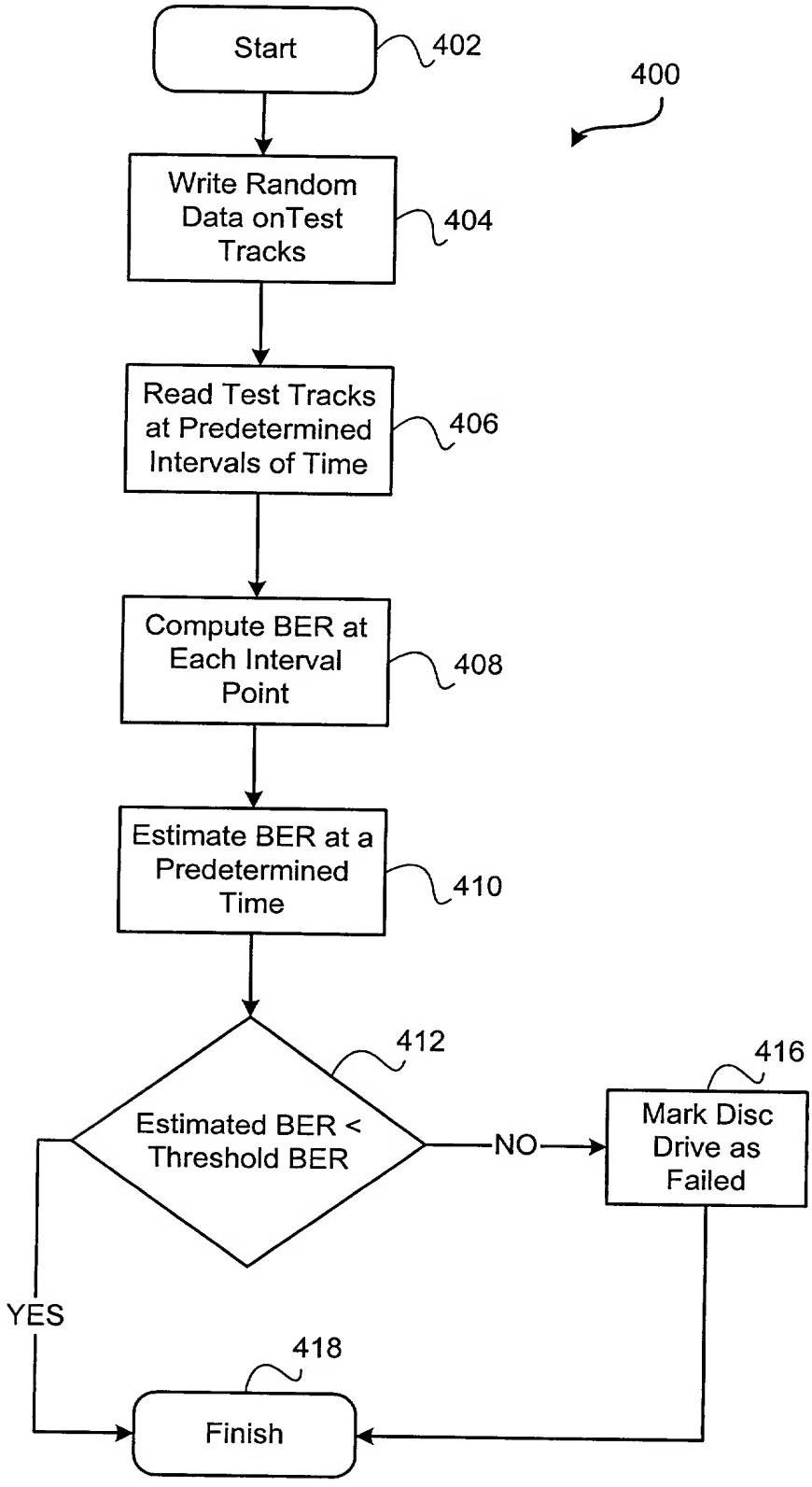

Start
402
400
Write Random Data onTest Tracks
404
Read Test Tracks at Predetermined Intervals of Time
406
Compute BER at Each Interval Point
408
Estimate BER at a Predetermined Time
410
412
Estimated BER < Threshold BER
NO
416
Mark Disc Drive as Failed
YES
418
Finish

FIG. 4

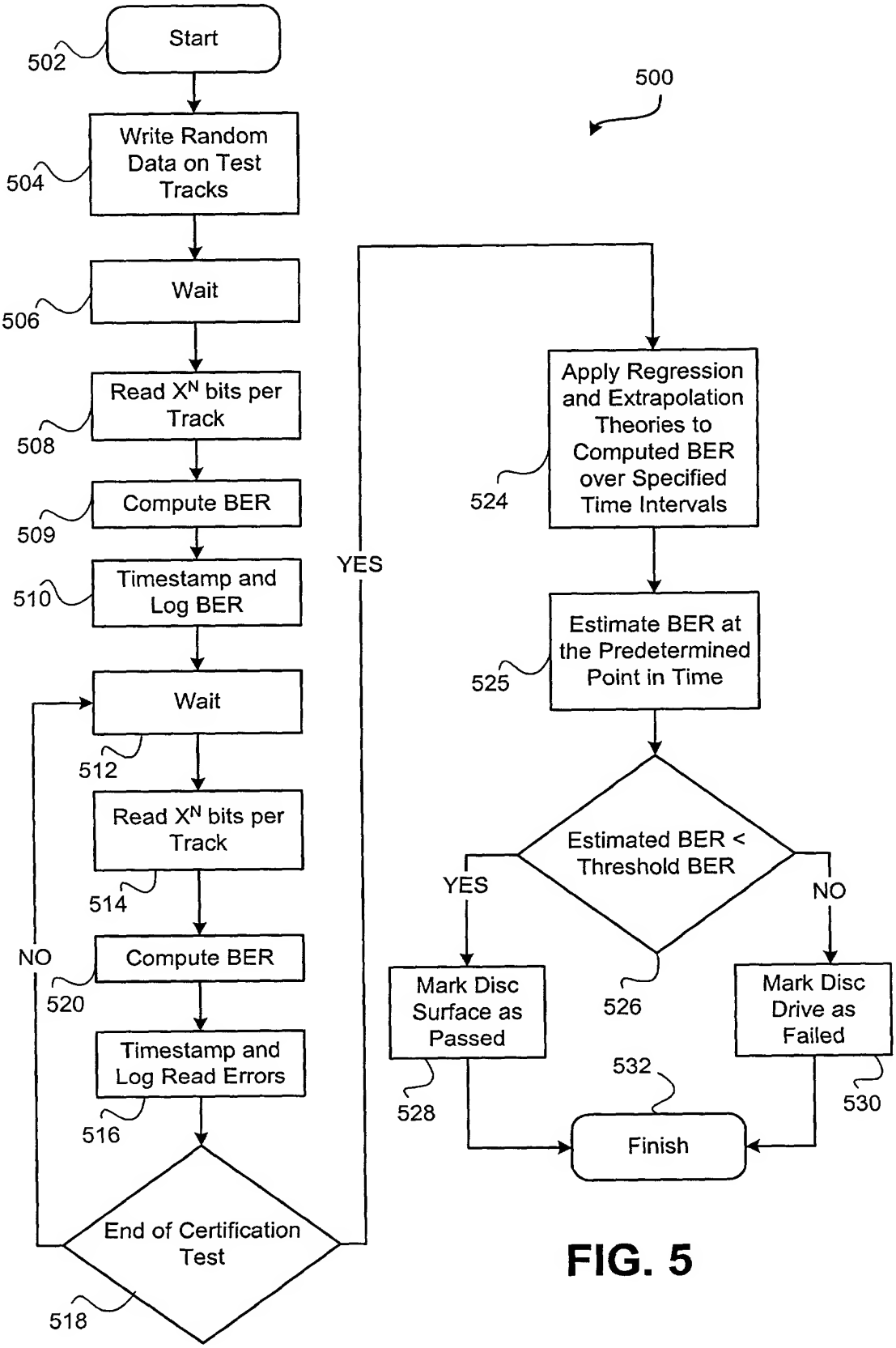

Start
502
500
Write Random Data on Test Tracks
504
Wait
506
Read X^N bits per Track
508
Compute BER
509
Timestamp and Log BER
510
Wait
512
Read X^N bits per Track
514
NO
Compute BER
520
Timestamp and Log Read Errors
516
End of Certification Test
518
YES
Apply Regression and Extrapolation Theories to Computed BER over Specified Time Intervals
524
Estimate BER at the Predetermined Point in Time
525
Estimated BER < Threshold BER
526
YES
NO
Mark Disc Surface as Passed
528
Mark Disc Drive as Failed
530
532
Finish

FIG. 5

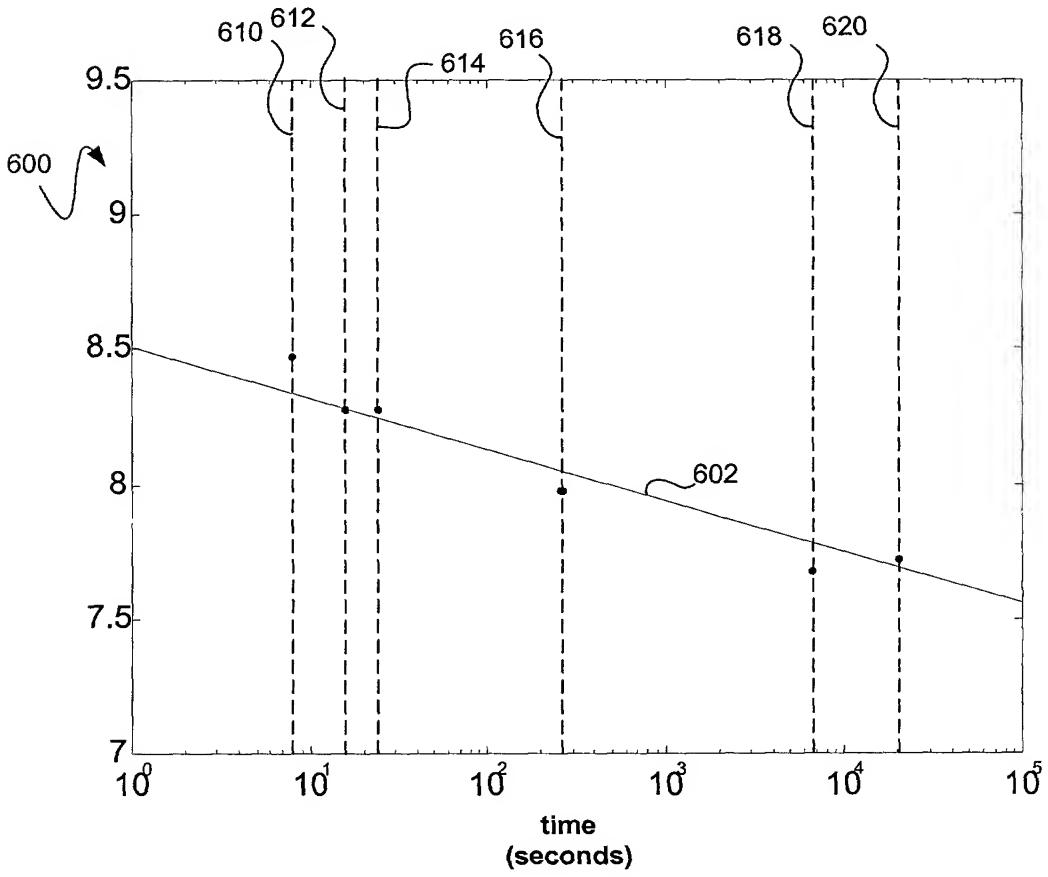

610
612
614
616
618
620
600
9.5
9
8.5
8
7.5
7
602
10^0
10^1
10^2
10^3
10^4
10^5
time
(seconds)

FIG. 6

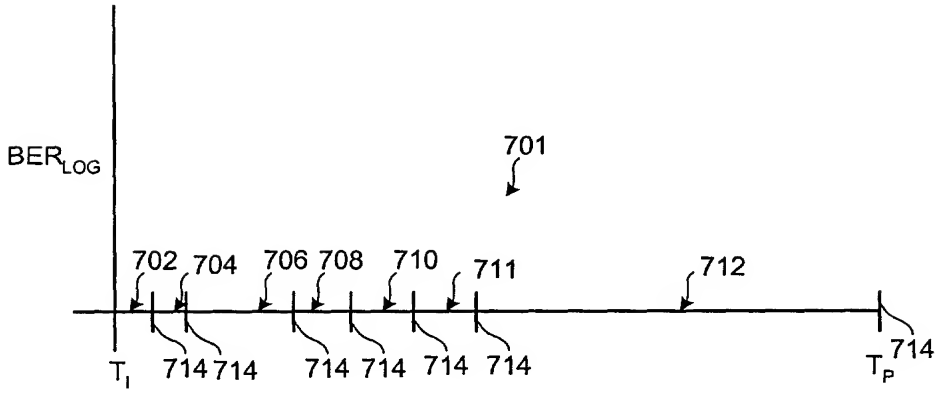
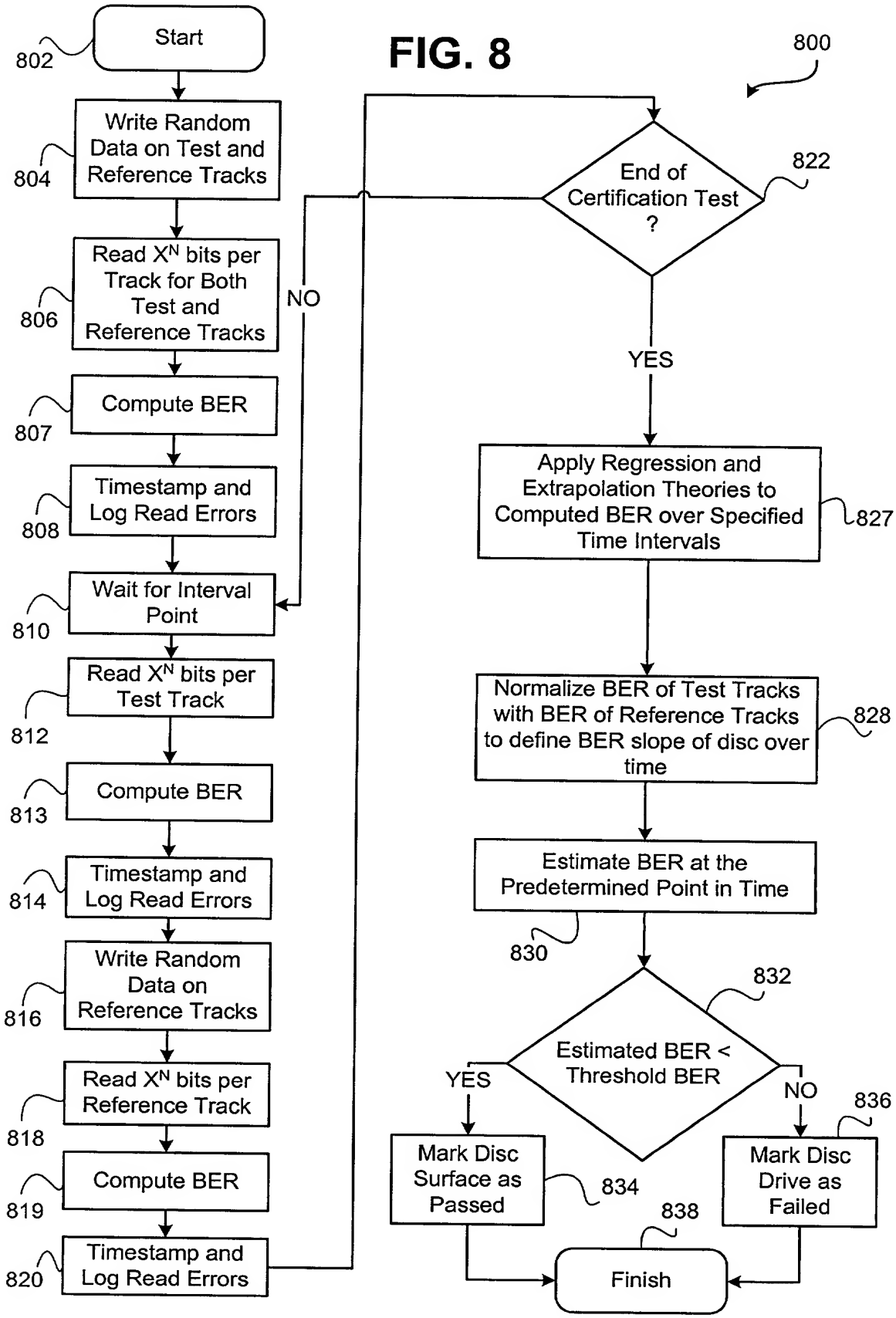

BER_{LOG}
701
702
704
706
708
710
711
712
714
T_I
T_P

FIG. 7

EXPRESS MAIL NO. EV 339 933 425 US

FIG. 8



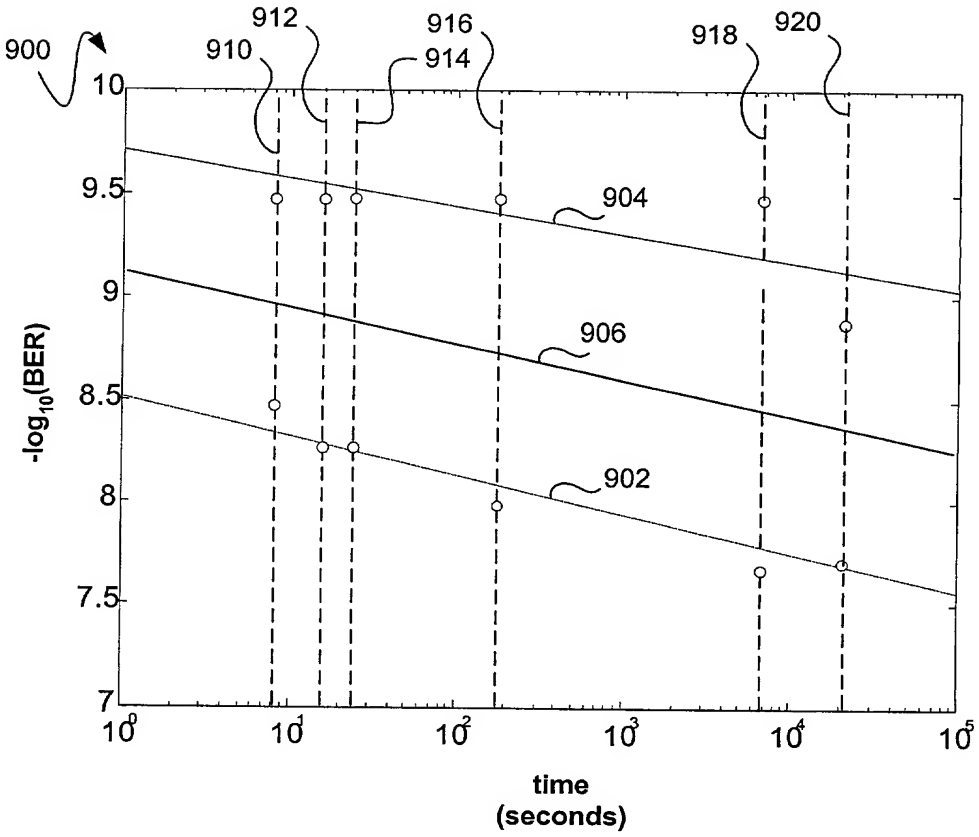

900
910
912
914
916
918
920
904
906
902
10
9.5
9
8.5
8
7.5
7
$-\log_{10}(BER)$
10^0
10^1
10^2
10^3
10^4
10^5
time
(seconds)

FIG. 9